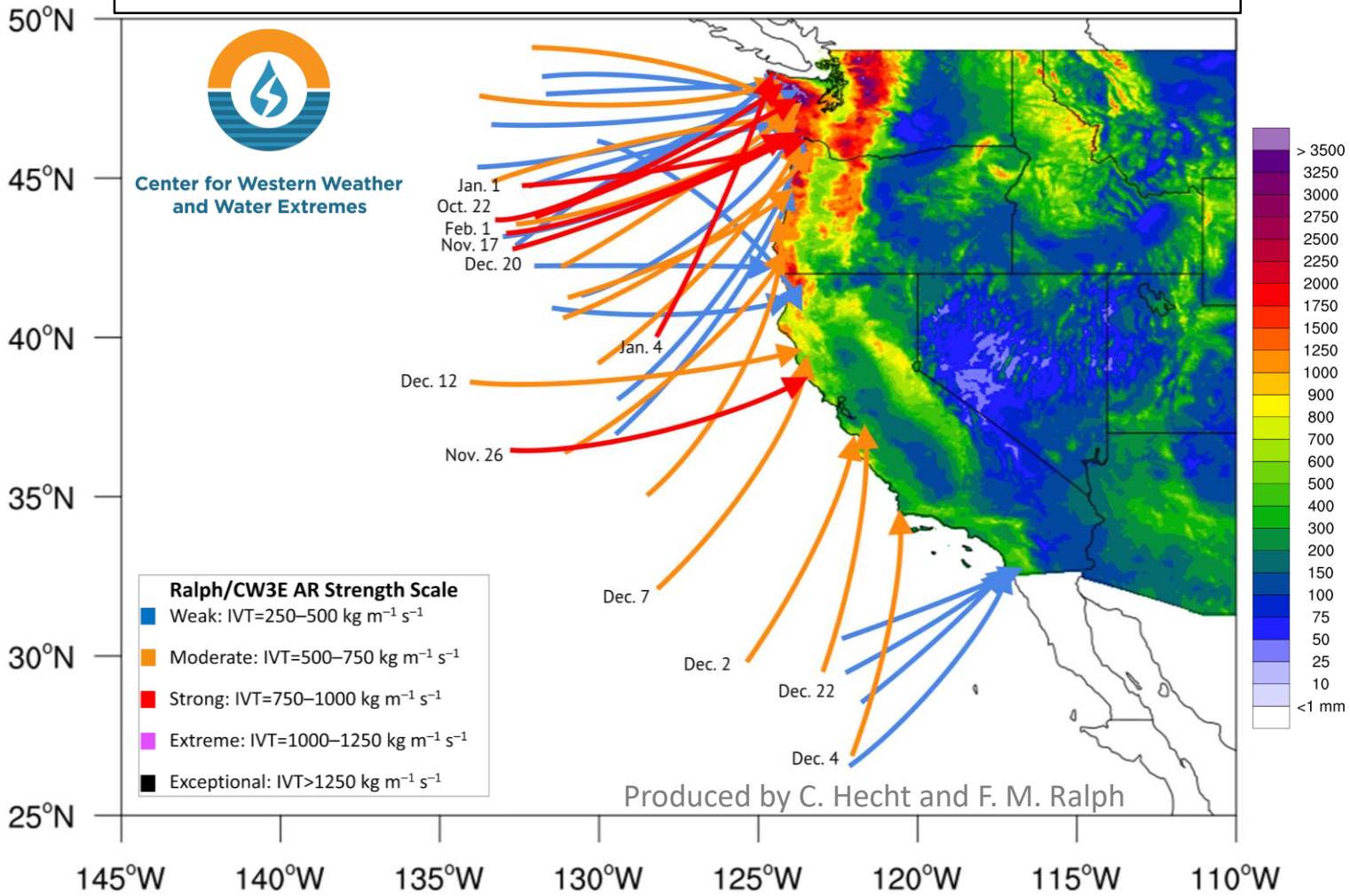
Water Year 2020: October through March ARs

Center for Western Weather and Water Extremes
SCRIPPS INSTITUTION OF OCEANOGRAPHY AT UC SAN DIEGO

AR Strength	AR Count
Weak	18
Moderate	15
Strong	7
Extreme	0
Exceptional	0

Regions Impacted by Each AR	
State/Region	AR Conditions
Washington	32
Oregon	34
Northern CA	25
Central CA	9
Southern CA	12

- **40** atmospheric rivers made landfall over the U.S. West Coast from October through March 2020



*Arrows are placed on the map where each AR was strongest over the coast

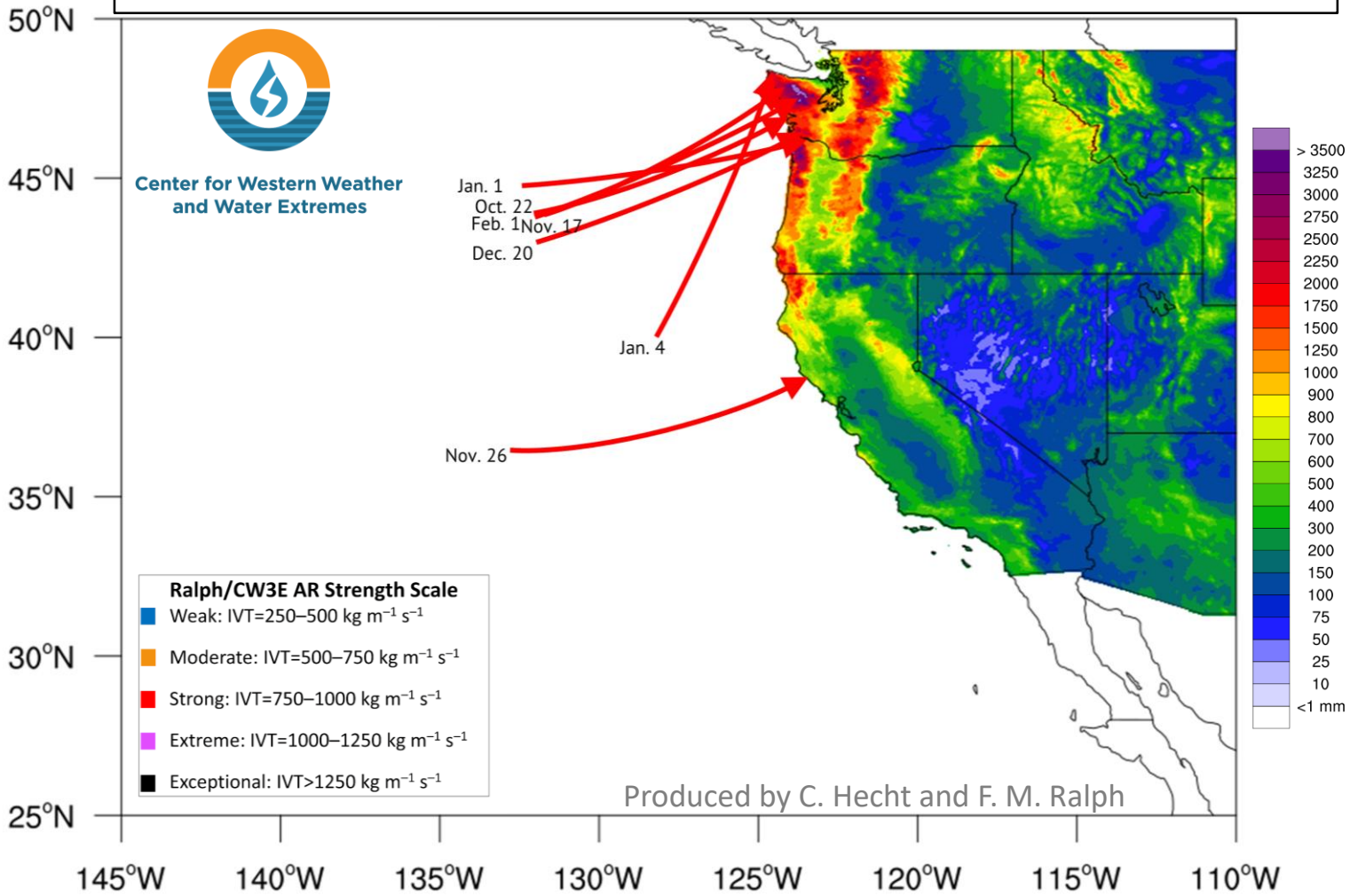
WY 20: October through March Strong or Greater ARs

Center for Western Weather and Water Extremes
SCRIPPS INSTITUTION OF OCEANOGRAPHY AT UC SAN DIEGO

Regions Impacted by Strong AR Conditions	
State/Region	# of times
Washington	6
Oregon	2
Northern CA	1
Central CA	0
Southern CA	0

- Of the 7 strong or greater magnitude ARs that made landfall over the USWC during WY 2020, only one brought strong AR conditions (IVT >750 kg m^{-1} s^{-1}) to Northern California
- Central and Southern California did not experience strong AR conditions during WY 2020 through March

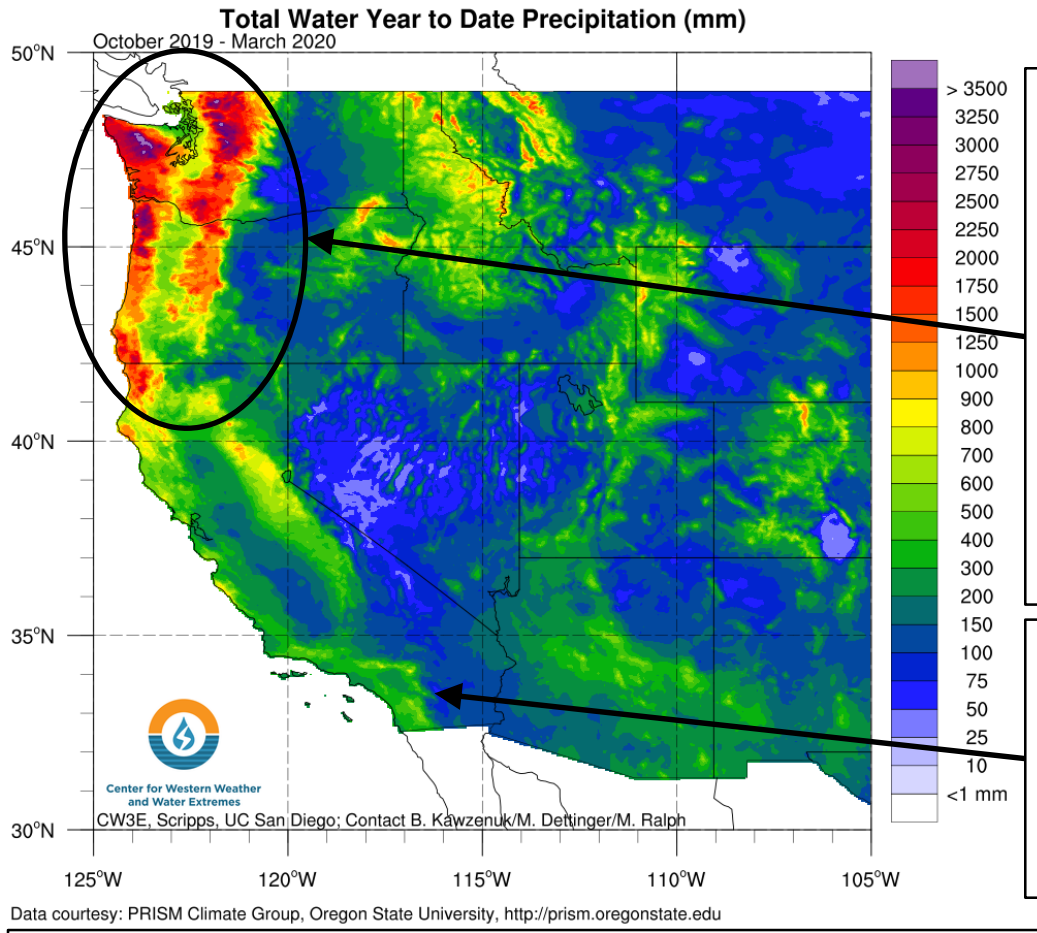
- **7 Strong** magnitude atmospheric rivers made landfall over the U.S. West Coast from October through March 2020



*Arrows are placed on the map where each AR was strongest over the coast

March 2020 Water Year Precipitation to Date

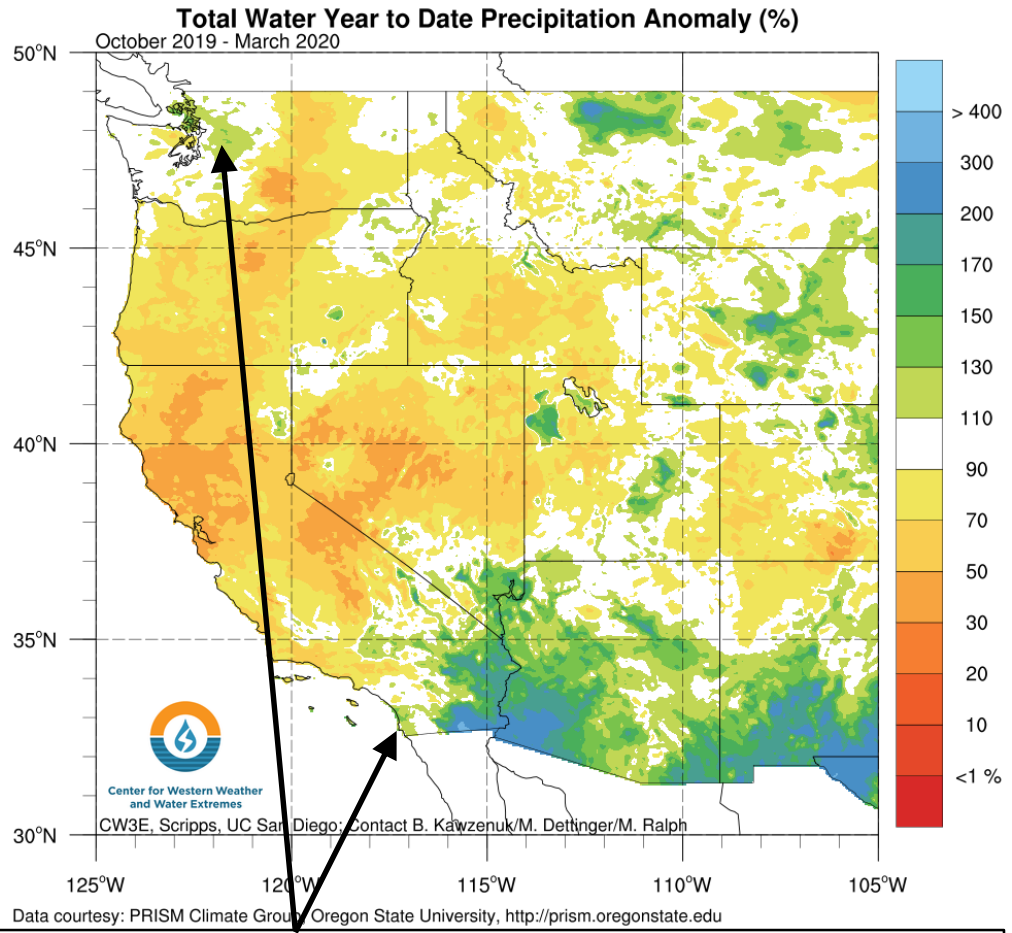
Center for Western Weather and Water Extremes
SCRIPPS INSTITUTION OF OCEANOGRAPHY AT UC SAN DIEGO



Data courtesy: PRISM Climate Group, Oregon State University, http://prism.oregonstate.edu

The highest water year to date precipitation accumulations (>1250 mm; >49 in.) fell over the Coastal and Cascade Ranges in the Pacific Northwest, where a majority of strong or greater strength ARs made landfall

A majority of Southern California received <800 mm (~31 in.) of water year to date precipitation through March

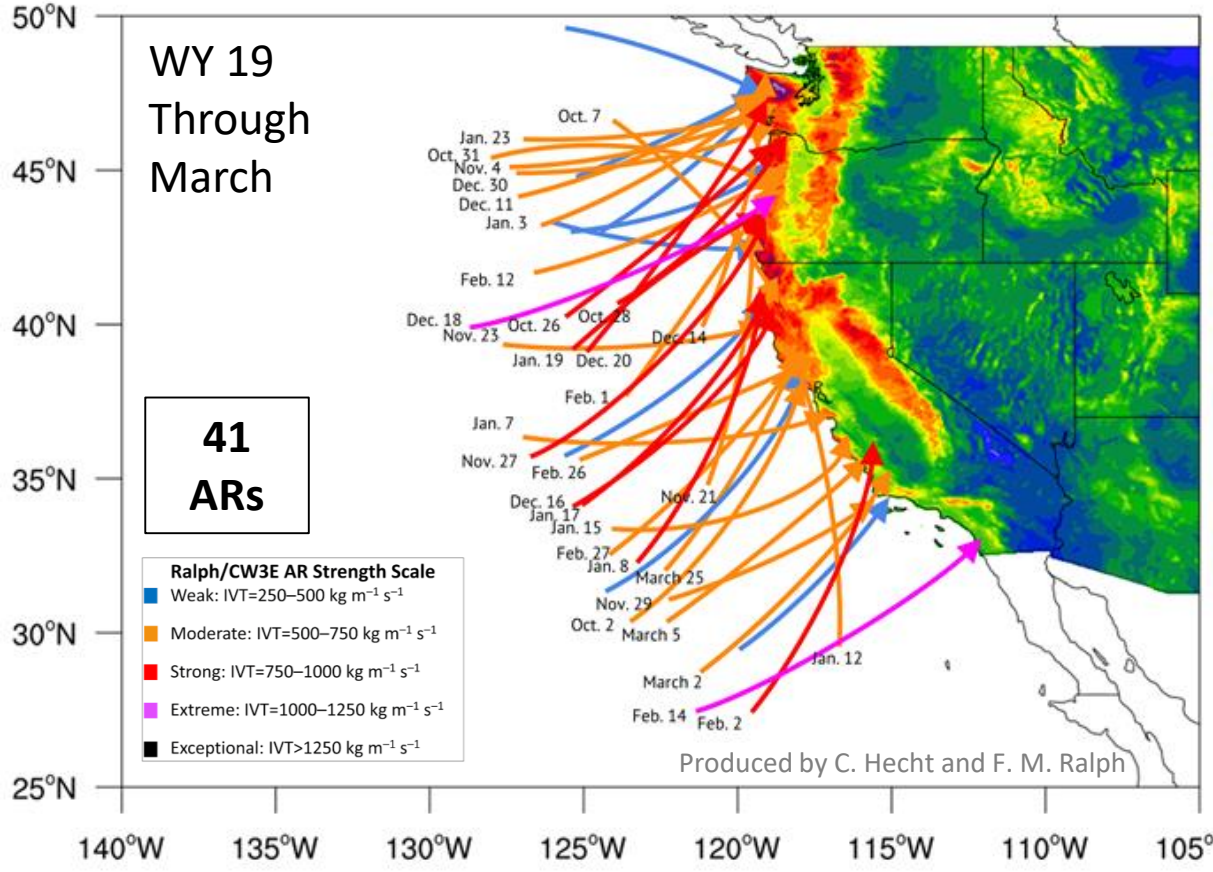


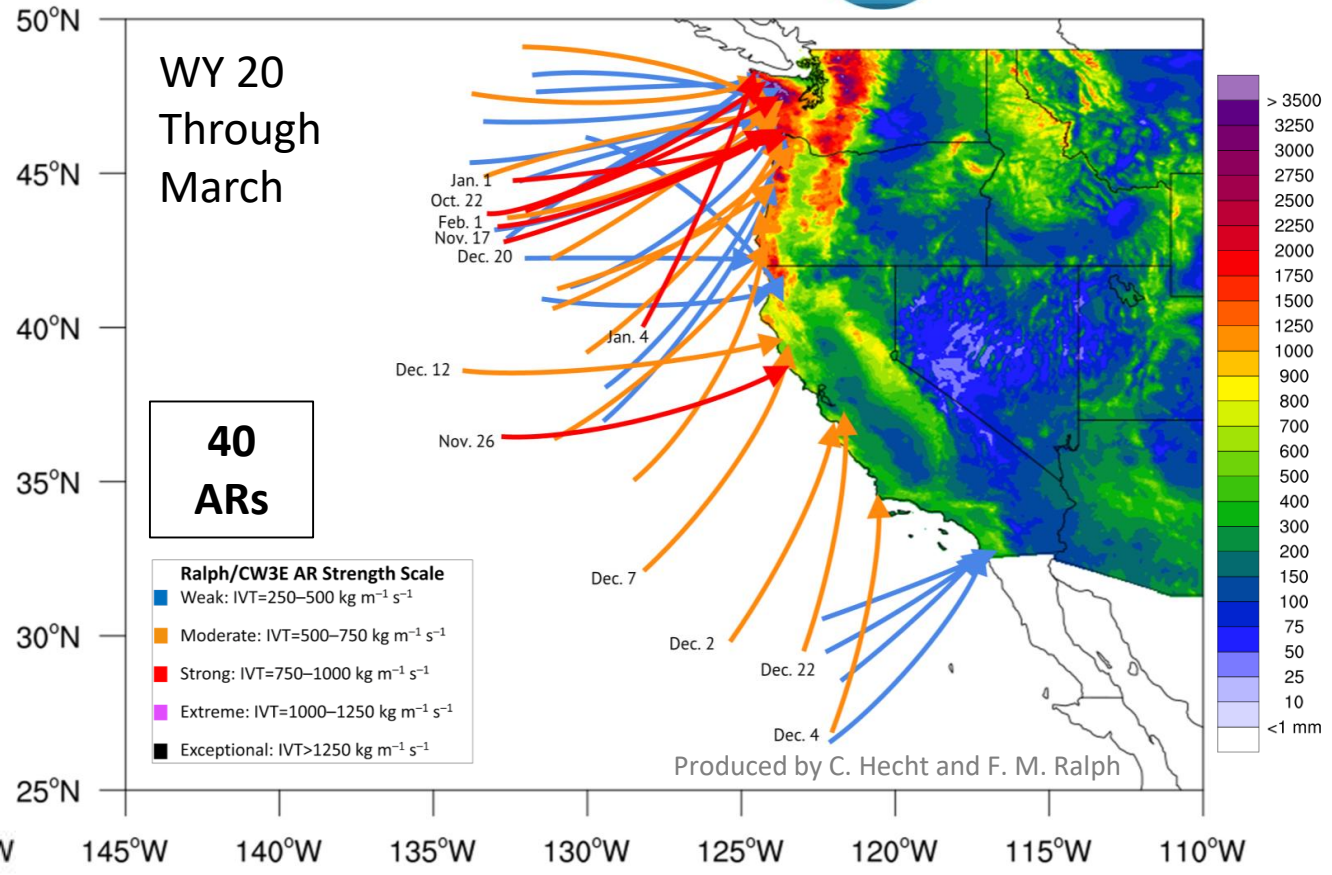
Data courtesy: PRISM Climate Group, Oregon State University, http://prism.oregonstate.edu

- The only locations across the Western U.S. that received near to above normal WY to date precip. through March were in the PNW and SoCal
- A large portion of the Desert Southwest also received >150% of normal precip. where numerous southwesterly ARs penetrated inland over the Baja Peninsula in Mexico
- Portions of Northern to Central California received <50% of the normal water year precipitation through March

WY 2019 Compared to WY 2020

Center for Western Weather and Water Extremes
SCRIPPS INSTITUTION OF OCEANOGRAPHY AT UC SAN DIEGO



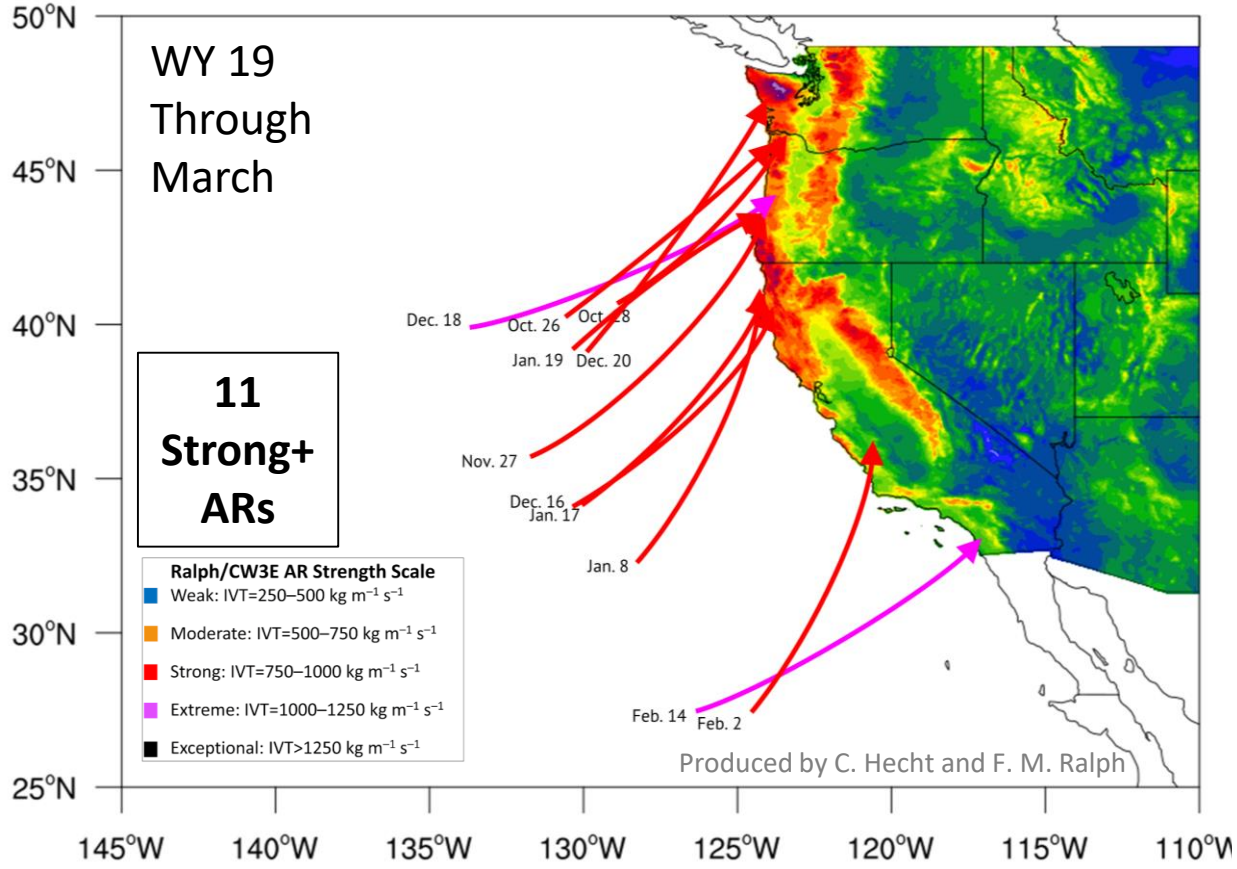


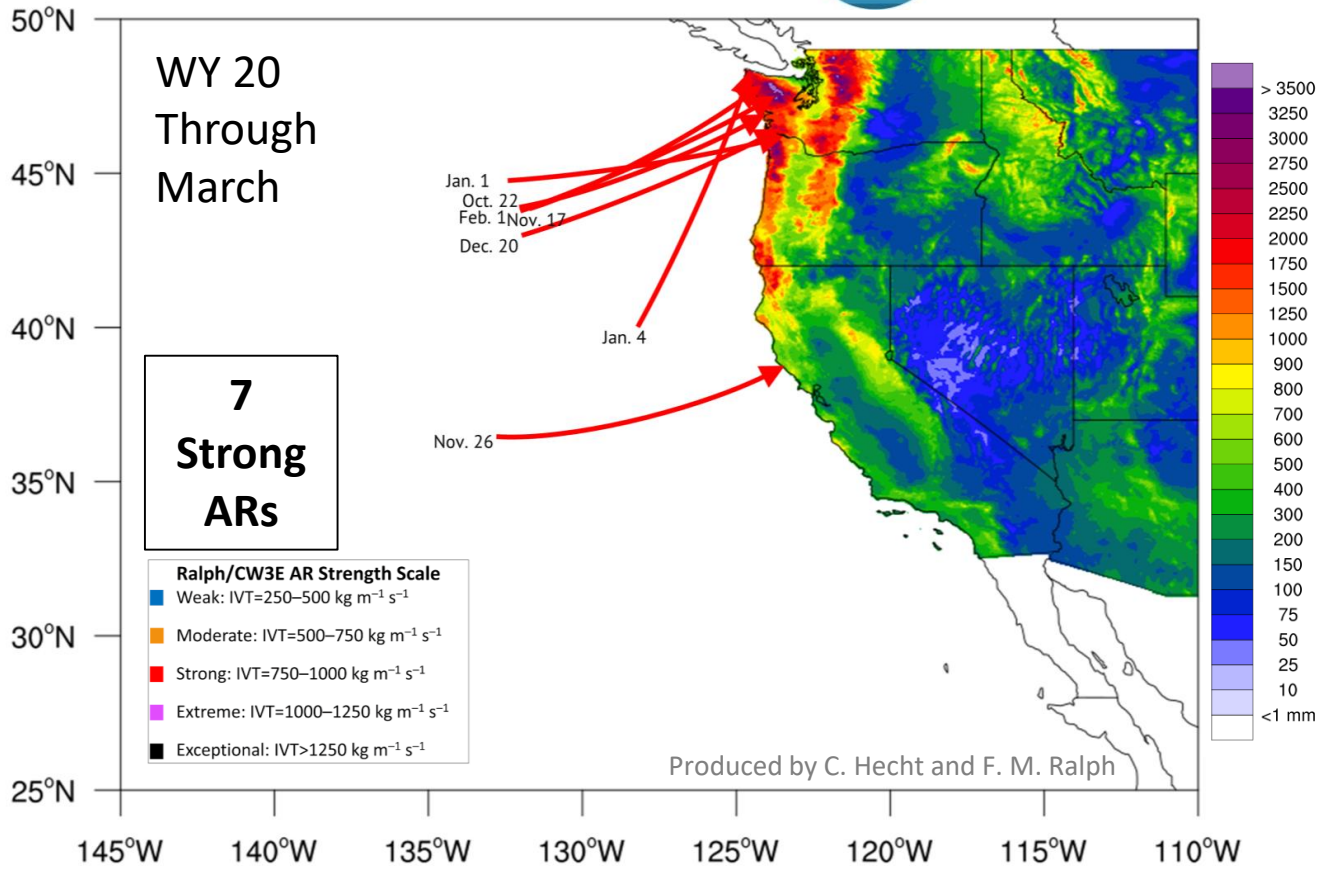
- The USWC experienced 41 landfalling ARs through March during Water Year 2019, one more than Water Year 2020 through March
- While WY 2020 only has one fewer AR than WY 2019, the ARs during WY 2019 were more spread out across the USWC
- The differences in AR distribution and strength between WY 2019 and WY 2020 resulted in more precipitation falling over a majority of CA in WY 2019 compared to WY 2020

*Arrows are placed on the map where each AR was strongest over the coast

WY 2019 Compared to WY 2020: Strong and Greater

Center for Western Weather and Water Extremes
SCRIPPS INSTITUTION OF OCEANOGRAPHY AT UC SAN DIEGO



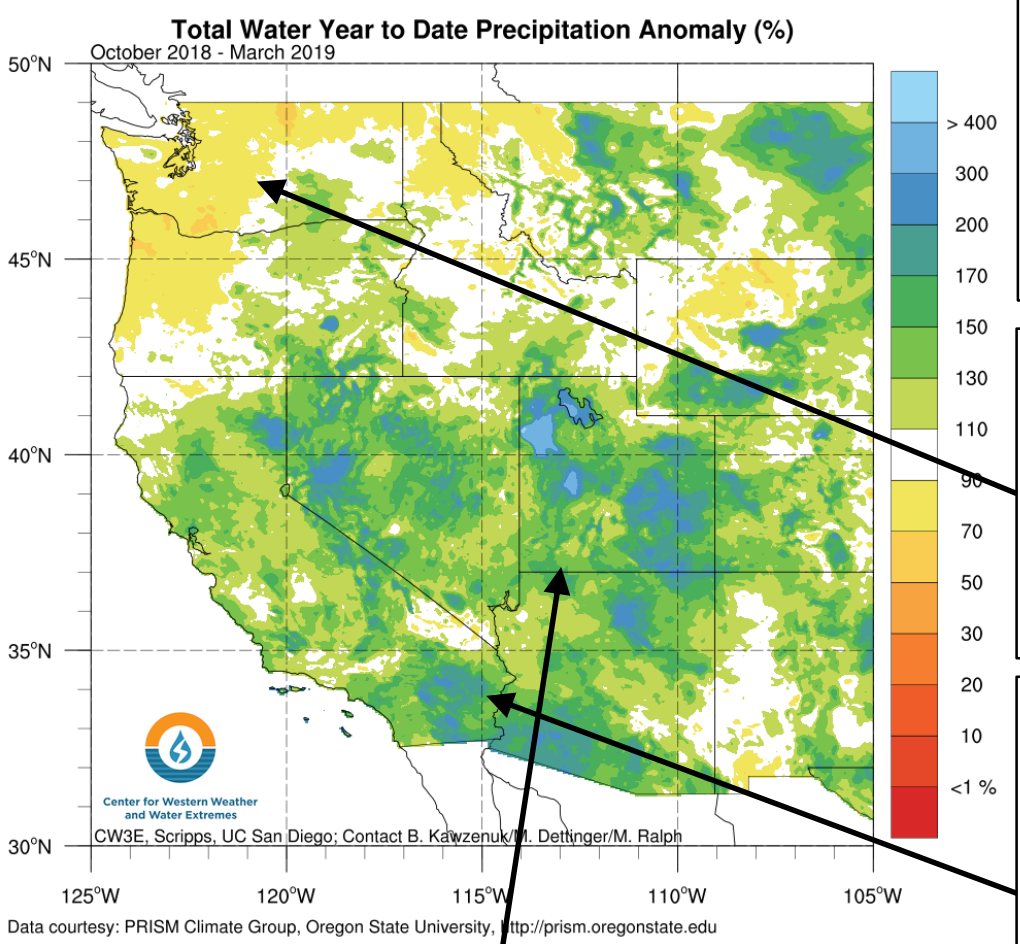


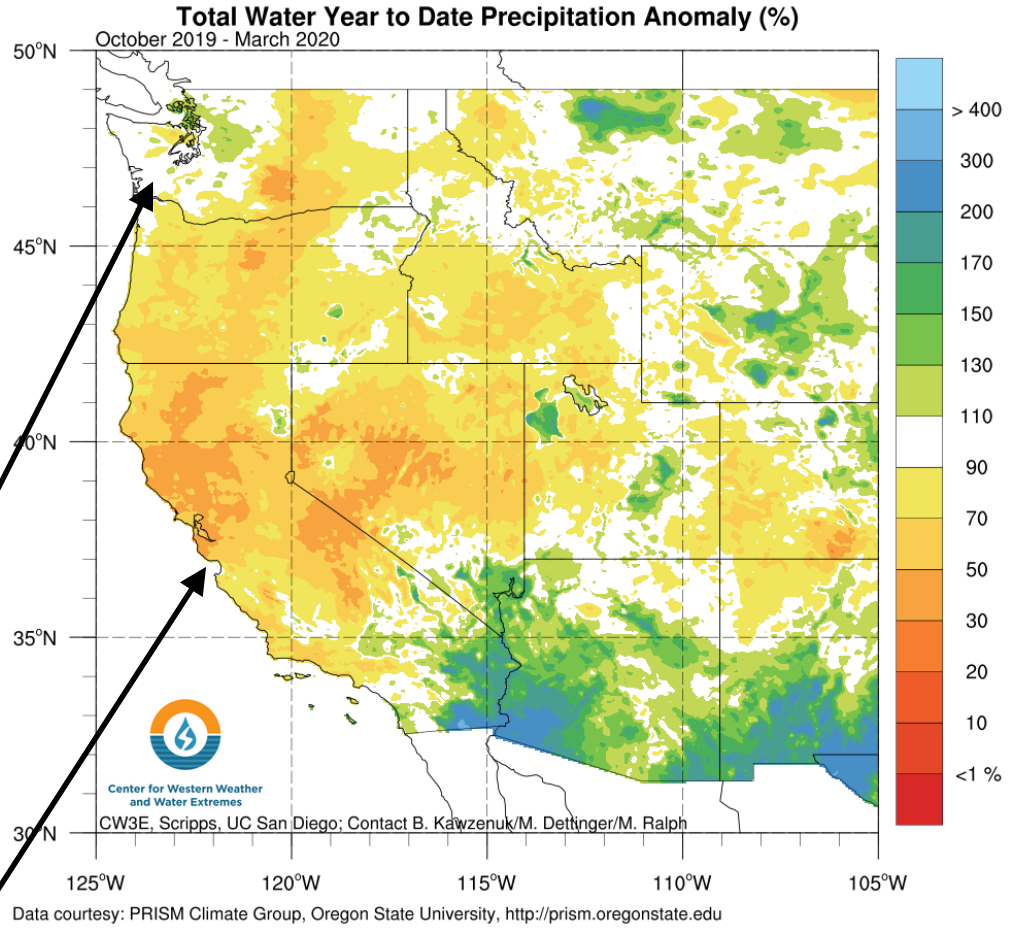
- WY 2019 also experienced a larger percentage of strong or greater magnitude ARs (11 vs. 7) over a larger geographic extent of the USWC
- WY 2019 experienced 2 extreme ARs where WY 2020 experienced no extreme ARs through March
- California also experienced 5 strong or greater magnitude ARs during WY 2019, whereas NorCal only experienced one during WY 2020
- The differences in both number and geographic location of ARs between WY 2019 and WY 2020 led to large differences in precipitation accumulations and spatial extent

*Arrows are placed on the map where each AR was strongest over the coast

WY to Date Precipitation: WY 2019 compared to 2020

Center for Western Weather and Water Extremes
SCRIPPS INSTITUTION OF OCEANOGRAPHY AT UC SAN DIEGO





The differences in AR activity between WY 2019 and WY 2020 led to large differences in precipitation distributions across the Western U.S.

For example, the western Washington received below normal precipitation in WY 2019 compared to near or above normal during WY 2020

Conversely, The lack of strong or greater magnitude ARs during WY 2020 led to much of CA receiving below normal precipitation compared to above normal during WY 2019

Much of the Intermountain West was also wetter during WY 2019 due to a greater number of inland penetrating ARs